Condurango

I HAVE read in No. 104 (October 26, 1871) of your scientific and highly-interesting journal, a few words on "Condurango," the new Ecuadorian plant that has lately called so much general attention in Europe and America to its supposed properties of curing cancer.

The want of exactitude in the description of the plant will doubtless give an erroneous idea of it to your readers, and with the desire of effacing such errors as those published in the "Andes" of Guayaquil, and in Bogota by Mr. Buyon, to whom you make reference, allow me to present to you and your readers the botanical description of the Condurango twining plant, very useful, indeed, in some rheumatisms and secondary syphilitic disorders, but of very doubtful medicinal properties in cancer, so far as my own experience goes.

The Condurango belongs to the order *Asclepiadaceæ*, 3rd tribe, which corresponds to *Aclepiadeæ veræ;* 1st division *Astephanus*, whose characters are that the limb of the corolla is without scales, and the stamens without appendage or corona.

This division comprehends only five genera, viz., *Mitostigma*, *Astephanus*, *Hæmax*, *Hemipogon*, and *Nantonia*. In none of these genera can the Condurango be classed.

The genus *Mitostigma*, as a distinguishing character, has two long filaments at the end of the stigma, and this is not the case in Condurango. The genus *Astephanus* has the sepals acute, the corolla subcampanulate, and the stigma elongated; characters that do not belong to the Condurango. The genus *Hæmax* has the divisions of the corolla hooded, and other characters not observed in the Condurango. The genus *Hemipogon* has the sepals of the calyx acute, hard, and with a curved extremity. The corolla is campanulate, which is not the case in Condurango. The genus *Nantonia* has the sepals striated and curved, which also is not the case in Condurango.

The flowers of the Condurango have a calyx of five divisions, obtuse, ovate, and villose in their inferior part, and of quincuncial præflorescence. The corolla is rotate, of five divisions, lanceolate, hairy at the base on the inside, and somewhat fleshy, with a membranous margin. Its æstivation is imbricated. The stamen has no appendage or corona; the anthers are terminated by a membrane, and the pollen-masses are elongated and suspended. The stigma is pentagonal and conical. The flowers are numerous and disposed in umbelliferous inflorescence.

As aforesaid, the Condurango forms a new genus. It is absurd to speak of Condurango as if it were the same as *Mikania huaco*.

In the importance of the subject I hope to find ample apology for asking room in your columns for these few lines.

A. DESTRUGE

Guayaquil, Ecuador, Dec. 13, 1871

Ocean Currents

IT appears to me that the numerical data adduced by Mr. Croll in his letter (NATURE, Jan. 11) disprove his conclusions.

The doing of 9 foot-pounds of work upon a pound of water should give it a velocity (in feet per second) of

$$\sqrt{2 \times 32 \times 9} = 24;$$

and the doing of one foot-pound of work upon a pound of water should give it a velocity of eight feet per second. These are much greater than the observed velocities, so that a margin is left for friction.

The following passage in Mr. Croll's letter also calls for some remark:—"But it must be borne in mind that the deflecting power of rotation depends wholly on the rate at which the body is moving. If difference of specific gravity be regarded as the impelling cause of any current, the deflecting power of rotation will certainly be infinitesimal."

The deflecting force does indeed vary directly as the velocity of the body acted on; but the curvature of path which the deflecting force tends to produce, is proportional to the quotient of the deflecting force by the square of the velocity, and therefore varies inversely as the velocity. In latitude 45°, a velocity of a foot per second would give a radius of curvature of less than two miles. Here, then, again, there is a wide margin left for resistance. The expression for the radius of curvature in feet, supposing that there are no resistances, is

$$\frac{6850\,v}{\sin\lambda},$$

λ being the latitude, and v the velocity in feet per second.

Belfast, Jan. 13

J. D. EVERETT

Mock Sun

I THUS name the phenomenon I am about to describe, but without regard to scientific accuracy. Last evening, a little before sunset, I observed a dark bank of clouds couched on the horizon, just beneath the sun, and a long mass of cirro-stratus above him. A band of light, of about half his width, stretched up and down to the clouds. This remained visible, with remarkable changes, till 25min. after the sun's total immersion. On his disappearance the band gradually widened (or seemed to do so), and assumed the form of a table flower-vase, *i.e.*, bulged at the base and cylindrical above. At ten minutes after sundown the band, which had been about 10° in length, stretched to 20°, being superposed on the cirro-stratus, where it was rose-coloured, the bulged portion being orange. At twenty minutes after sundown a slight collapse occurred, and the band almost disappeared, the bulged portion becoming an orange disc, just like a second sun setting in fog. Soon afterwards this became elongated, and the band reappeared, stretching over an arc of 40°. A few minutes later all disappeared. I witnessed this beautiful phenomenon from a carriage on the L. and N.W. Railway, on both sides of Blisworth.

C. M. INGLEBY

Edgbaston, Jan. 20

Solar Eruptions and Magnetic Storms

AT a recent meeting of the Astronomical Society a paper was read by Mr. Ranyard, in which some suggestions were put forward concerning the possibility of accounting for the solar prominences on the supposition that they may be caused by the projection of matter from a lower level, and that such an uprush into and through the layers above, emerging into the lighter envelope of the chromosphere, might lift before it a cone of compression of the gaseous matter, producing an elevation on the surface, visible to us as a prominence. And the solid particles or masses thus projected might form meteorites, the shape of the prominence being afterwards modified by other causes.

This theory, offering as it does a possible account of the genesis of prominences and meteorites, appears to contain the germ of another hypothesis respecting the cause of the connection between solar eruption and terrestrial magnetism.

If it be legitimate to suppose that in and near the photosphere we have a circuit of conducting matter (viz. incandescent metallic vapours), according to well-known facts any cause tending to effect an unequal distribution of heat, and at the same time a want of homogeneity of structure, such as a difference of pressure or density, would establish thermo-electric currents in such a circuit.

Now such a difference would arise from an upward burst of matter from below the photosphere. If, therefore, the prominences have their origin at great depths below the photosphere, we may expect currents of considerable intensity to circulate round the equatorial region of the sun. In the equatorial region rather than in any other, because it is there that the greatest disturbance is manifested, as shown by observations on the limits of spots and prominences; and, therefore, *there* that the necessary *differences* of temperature are most likely to occur, the effects of such currents being to create secondary or reduced currents in the adjacent layers, and, if of sufficient intensity, in the earth itself.

Provided that this be so, this supposition will suffice to reconcile some observed facts. Secchi has deduced,[*] in treating of the periodical variations of the magnetic elements, the law that "The annual disturbances are at a maximum at the equinoxes, and at a minimum at the solstices."

Knowing then that the plane of the sun's equator passes through the earth on June 11th and Dec. 12th, and that therefore the equator as seen from the earth presents its widest ellipse in March and September, it follows that such thermo-electric currents, if they exist, are able to exert their maximum inductive effect on the earth at or near the equinoxes.

The case is analogous to the experiment in which terrestrial magnetism is made to cause induced currents in a closed circuit rotated round an axis at right angles to the magnetic meridian.

In this case the ring is placed successively in positions variously inclined, but always keeps its plane perpendicular to the meridian, and the maximum induced current then occurs.

Similarly, solar equatorial currents would produce *their* maximum effect when the plane of the sun's equator has its aspect most nearly in the direction of the earth, and although any

De La Rive's Electricity, tom. iii, p. 780

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variations in the intensity of these solar currents may be followed by a disturbance in the terrestrial magnetism at any time, yet such disturbance should be at a maximum at the equinoxes (as is the case by Secchi's law), because then the sun is most favourably situated for causing such effects.

In this hypothesis the source of the earth's permanent magnetism is not included, but simply the cause of the close connection between solar eruption and the disturbance of the terrestrial magnetic elements.

F. A. FLEMING

Mechanism of Flexion and Extension in Birds' Wings

UNDER the above heading in your issue of January 18, 1872, Dr. Elliot Coues describes the peculiar movements made by the bones of the wing of the bird in flexion and extension. It may interest some of your readers to know that those movements were minutely described and elaborately illustrated in a paper by Dr. J. Bell Pettigrew, communicated to the Linnean Society in June 1867, and published in vol. xxvi. of the Transactions of that body.

MILLEN COUGHTREY

Edinburgh University, Jan. 22

Elisée Reclus

A MEMORIAL addressed to the "Commission des grâces," sitting at Versailles, and most influentially signed by many of the leading scientific men in London, was presented at Versailles on the 3rd inst.

It is an appeal for commutation of sentence of deportation passed on Elisée Reclus, the well-known French geographer, author of "La Terre," an admirable popular work on physical geography (now being introduced as an English work* by Messrs. Chapman and Hall), and various other books.

A paragraph having appeared in several of the daily papers announcing that M. Reclus's sentence had been already commuted to simple banishment, I regret to state that he is still a prisoner at Versailles, although it is hoped the appeals made in his favour may produce the desired result.

The petition to the Commission in favour of Elisée Reclus was signed by the president of the Geological Society (Mr. Prestwich), Sir Charles Lyell, Bart., Mr. G. Poulett Scrope, Profs. Owen, Ramsay, Williamson, Duncan, Atkinson, Morris, Rupert Jones, Tennant, Messrs. Evans, Forbes, Gwyn Jeffreys, Drs. Carpenter, Richardson, and many others.

A second petition signed by Sir Henry Rawlinson, Sir John Lubbock, Bart., Mr. Darwin, and other men of eminence, was addressed to M. Thiers in favour of Elisée Reclus.

Surely the time for an amnesty has arrived.

British Museum, January 23 H. WOODWARD

NOTES ON MICROSCOPY

MOUNTING IN GLYCERINE.—It is often found desirable to mount very thin objects in glycerine, for which no special cell is requisite, and in which the thickness of a cell would be a disadvantage. To accomplish this was often a work of difficulty, since the presence of the smallest amount of glycerine outside the thin glass cover prevented the adhesion of the luting by means of which the cover was to be secured to the slide. Since the introduction of gum dammar dissolved in benzole to the attention of microscopists, this disadvantage has almost wholly vanished. It is now comparatively easy to mount such objects in the following manner. A small drop of glycerine, just enough for the purpose, is let fall in the centre of an ordinary cleaned slide, the object is then placed in the glycerine, having been previously soaked in benzole if any difficulty was likely to be experienced on account of contained air; a cover (say three quarters square) of thin glass is placed over the object and pressed down, taking care that the object remains in the centre; a wire clip then applied holds the cover in its place. If too much glycerine has been used, blotting-paper or a camel-hair pencil will remove all that issues beyond the edge of the cover. If too little, the addition of more at one edge will supply the deficiency, and the superfluous remainder may be wiped away. Thus secured by the clip the edges of the cover may be painted round with gum dammar in benzole, and when dry and firm (in a day or two) the clip may be removed, and the surface of the slide carefully washed to remove any trace of glycerine. The clip may be replaced, and a second thin coating of dammar laid over the first, or old gold size may be used instead. When this is dry "papering" the slide in the usual way helps to provide against accident. The advantages derived from the use of this method are chiefly the facility with which the cover is attached, notwithstanding the presence of a trace of glycerine on the slide and cover, which it is not easy to avoid; and, so far as the experience of two years can vouch, freedom from leakage afterwards, especially when covered with paper. This plan succeeds best with objects as thin as the minute spores of fungi, delicate hairs, &c., and a one-eighth objective may be employed in their examination.

THE ASCI IN PEZIZA.—Having left a specimen of *Peziza humosa* for a long time in water until it became quite soft and pulpy, I was curious to examine it in such condition, and found that the hymenium presented a singular appearance. All the paraphyses had become dissolved into a granular mass, retaining still some of their original colour. Amongst these the asci were free, and there were some free sporidia. In their normal condition the asci are cylindrical, and the sporidia are arranged in a single series, but in the present case the asci had become perfectly spherical, from the absence of all lateral pressure, and the sporidia were clustered in the centre. The line of the external surface of the asci was very distinct amongst the orange-tinted granular mass, and the eight sporidia could be counted within. There could be no doubt of the presence of an investing membrane, but of a much more elastic nature than has been supposed. This fact seems to suggest the probability that more or less lateral compression in the hymenium may influence the character of the asci, and that cylindrical, or clavate and elliptical asci, indicate more or less of lateral pressure during development.

SACRED THREAD.—The sacred thread, or at least one kind of thread held sacred to religious purposes by the Brahmins in India, is derived from the stem of a species of water lily—some say the *Nelumbium speciosum*, others *Nymphœa edulis*. At any rate under the microscope it exhibits a mass of spirals, unwinding in ribbons of four or five threads laterally united. There is no trace of cells mixed up with it, and the spiral threads are as clean as if they had been removed with special care for microscopical purposes.

HOP MOULD.—A new mould has made its appearance during the past autumn on the spent hops so common about Burton-on-Trent. It formed large dense patches of a bright salmon colour, sometimes several inches in length and breadth, upon the sombre hops, and could not have escaped notice had it appeared in previous years. The structure of this mould seems to be closely allied to that of *Oïdium*, whilst in many respects it reminds one of *Sporendonema casei*. The creeping mycelium gives rise to branched threads, which become divided into strings of oval conidia or spores. The mould refuses to develop itself artificially, so that the mode in which the beaded spores were produced was not absolutely determined. Directly the threads come in contact with fluid of any kind they are resolved into a mass of oval cells or spores. Specimens of this mould have been published and distributed in Cooke's "Fifth Century of British Fungi" under the name of *Oïdium auranttum*, a rather unfortunate specific name, since another member of the same genus which appeared nearly simultaneously on the Continent has been called *Oïdium aurantiacum*.

M. C. C.

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* Sections I. and II. of this work are already published; Sections III. and IV. are now in the press.

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